

## APPENDIX G

# FIRES INTEGRATION

*Synchronization between the fires and maneuver battlefield operating systems is critical to mission success. The planning process must integrate these two BOS into a single, coordinated effort. After planning guidance is issued to the fire support officer, the entire staff must work to ensure that the technical and procedural aspects of fire support are understood and crafted in a way that maximizes the effects of fire support while complementing the maneuver plan. The challenge to the combined arms commander is to achieve synchronization. While success in any battle, engagement, or operation is never guaranteed, its achievement is much more likely for the commander who can synchronize military actions.*

### G-1. COMMANDER'S GUIDANCE FOR FIRE SUPPORT

The commander's early and continuous involvement in the fire support plan is essential to ensure that fires are effectively synchronized with the maneuver plan. At a minimum, the commander must articulate what he wants from the indirect assets in the form of a task and purpose for fires at each critical event on the battlefield. The commander's guidance for fire support becomes the basis for the battalion task force concept of fires and the fires paragraph (Table G-1, page G-2).

a. It is important for the FSO and the battalion task force commander to have a common understanding of what fires must do to support the operation before the FSO begins to develop the plan of how to do it. The battalion task force staff (with the commander's approval) may further define the initial EFSTs as the MDMP progresses, but the more clearly the commander defines them initially the more focused and effective fire support planning will be.

b. A task for fire support describes a targeting effect against a specific enemy formation's function or ability. The purpose describes how this effect contributes to accomplishing the mission within the intent. The commander's initial planning guidance for fire support will become the basis for the concept of fires and the fires paragraph. Synchronization in the plan will depend largely on the commander's ability to issue planning guidance to BOS representatives that cause them to develop integrated COAs.

c. As EFSTs are determined during the MDMP using a top-down planning, bottom-up refinement process, fires are integrated into the scheme of maneuver. If the staff has thoroughly war-gamed possible enemy and friendly courses of action, the resultant fire support plan is focused. That is, it provides the effects desired by the commander when and where he wants them to help accomplish the mission. During execution, the only thing that should be allowed to desynchronize the plan is enemy actions not previously considered. Since this will almost always occur, the commander must have a system in place to immediately make D3A decisions, disseminate them and execute them violently. Fighting the enemy (not the plan) in accordance with the commander's guidance provides focus.

d. In terms of a *brigade versus battalion fight*, there is only one fire plan. The top-down plan developed and refined during the MDMP and preparation phase should incorporate EFSTs supporting brigade and battalion (and company) schemes of

maneuver. As (if) fires shift from deeper to closer targets, execution responsibility tends to shift from brigade to battalion. In executing the fire plan, brigade *does not hand fires off to subordinate headquarters; it hands off the responsibility for executing certain EFSTs to subordinate headquarters*. In this manner, brigade fires remain synchronized with brigade maneuver while still supporting subordinate maneuver units. The expected conflict between simultaneously attacking targets the battalion wants attacked by fires and attacking targets the brigade wants attacked by fires must be planned for and war-gamed in the MDMP.

<b>EFSTs.</b> What fire support is to accomplish, providing task and purpose at a minimum.
<b>Focus for Fires.</b> Focus by phase of the battle and linked to specific events.
<b>Targets.</b> The type of target to be engaged and the desired effect on each.
<b>Force Protection Priorities.</b> The priorities for protecting friendly forces and for counterfire.
<b>Restrictions and Priorities for Special Munitions.</b> (Include use of smoke, SCATMINES, Copperheads, or illumination)
<b>Observer Plan.</b> Employment of COLTs, STYKERS, etc.
<b>Radar Guidance.</b> Establishment of radar zones, security of radar systems
<b>Fire Support Coordination Measures.</b>
<b>ROE Guidance.</b> Protected target list.
<b>Engagement Criteria.</b> Guidance of size and type of units to be engaged at selected points in the operation.

**Table G-1. Commander's guidance for fire support**

## **G-2. PLANNING AND INTEGRATION OF FIRE SUPPORT EFFECTS**

The planning and integration of fire support effects occurs during steps three and four (COA development and COA analysis) of the MDMP.

a. As the battalion task force staff begins COA development, the FSO (based on initial fire support guidance from the commander) conceptualizes how to integrate fires into the developing concept of operations. The FSO uses the approved EFSTs and battalion task force commander's guidance for fire support to develop where and how he recommends the allocation of fire support assets to each COA. The output for this step is a draft fire support plan for each COA.

(1) The FSO and staff conduct the following actions during COA development.

(a) They determine where to find and attack EFST formations. The battle staff determines where the enemy formations identified by the commander can be found and attacked. The staff graphically portrays these locations using TAIs or EAs.

(b) They identify HPTs in EFST formations (target value analysis). Certain sub-elements, capabilities, or equipment sets within the EFST formations may be more vulnerable to attack with fires and or may provide the best effects if attacked. This process results in identifying or refining the HPTs.

(c) The battalion task force FSO uses products from brigade-level target value analysis to assist him in the targeting process (decide phase) during COA development. These products include:

- HPTL - a prioritized list of HPTs.
- AGM - addresses which targets will be attacked, how, when, and desired effects.
- Target selecting system (TSS) - addresses accuracy and time criteria that must be met before targets can be attacked

**NOTE:** At battalion task force level the FSO will rarely develop his own HPTL, AGM, or TSS. Examples of targeting products developed at brigade level can be found in FM6-20-40. For further explanation of these products refer to FM6-20-10.

(d) The TF staff quantifies effects for EFSTs and quantifies success. It focuses on what must be accomplished to achieve the EFST. If desired effects cannot be achieved with the assets allocated, the staff must rework the method or request additional assets.

(e) The TF staff plans methods for EFSTs (allocate assets to acquire/allocate assets to attack). This step involves allocating or assigning assets to detect and track HPTs. The maneuver S2, S3, and battalion task force FSO work together as they build this part of the R&S plan. They then determine who can execute the task based on the battalion task force scheme of maneuver, acquisition asset capabilities, and the priorities of the collection plan. The FSO must consider asset general movement and positioning requirements (for example, FOs, FISTs, or COLTS) to enable execution of fires with refinements made during war-gaming.

(f) The TF staff integrates triggers with maneuver COA. The synchronization of maneuver and fire support is essential for success. The FSO must understand the relative timing of maneuver and fires and establish triggers that reflect this. For example, "When the lead team crosses Phase Line Dog, the obscuration smoke will be fired at grid NK 124757." Triggers are further refined during the COA analysis war gaming process and during the combined arms rehearsals.

(g) The staff uses battle calculus to test feasibility. As the FSO and battle staff develop COAs, they must apply doctrinal or measured rates, planning factors, speeds, and other data to ensure the plan is feasible.

(h) The FSO assists the S2 in ISR plan development. He coordinates with the S2 and S3 to ensure there are adequate, redundant collection assets to find, track, and attack the HPTs in the fire support plan.

(i) The commander and staff must integrate the task force mortar platoon into the fire plan:

- The mortar platoon leader must be actively involved in developing the fire support plan.
- The TF commander should integrate the mortar platoon at each phase of the operation.
- The mortar platoon requires a copy of the FS execution matrix to assist in technical data processing.

(2) The result of the above listed actions is the output of a draft fire support plan for each COA, branch plan, or sequel. EFSTs should be clearly identified. The draft battalion task force fire support plan will include the following:

- Draft fires paragraph/concept of fires.
- Draft FSEM that graphically communicates the details of the fires paragraph. It ties executors to targets relative to time and or events of the scheme of maneuver.
- Draft target list worksheet and overlay that provides detailed description of targets, tentative target locations based on IPB, and in modified form can provide the task and purpose of each target and link each target to the EFST it supports. The overlay provides a graphic depiction of the target locations.
- Develop ISR plan. The FSO assists the S2 and S3 in its development.

b. During COA analysis, the staff refines the necessary details of the concept of the operation. During the war game process, targets and triggers are refined. As the battle staff conducts an action-reaction-counteraction drill to cause and respond to enemy acts, the war game provides the FSO with the opportunity to finalize targeting decisions (refine targets, establish primary and alternate executors, and their triggers), visualize and synchronize the fire support plan with maneuver, test and refine the fire support plan, and modify the plan based on the above. Based on the issues identified by the war game, the FSO and staff can modify the draft fire support plan and products.

(1) During COA analysis, the following actions occur:

- Finalize HPTL and other targeting decisions.
- War-game fire support plan against enemy COA.
- Modify and or refine fires products.

(2) Based on the above actions, the output of the COA analysis is a refined fires products to include the following:

- Fire support annex.
- FSEM.
- Target list.
- Target list overlay.

c. Upon completion of the operations order, the commander must ensure that the fires plan, which may be well synchronized in the OPORD, is similarly well synchronized during the execution of the mission. He ensures fires synchronization after the issuance of the OPORD by supervising the following activities:

- Active participation during the maneuver and fires rehearsals.
- Back briefs from subordinate leaders on their understanding and execution of the fires plan.
- Ground reconnaissance with his subordinate leaders to ensure that the observation plan is properly positioned to obtain desired results.

### **G-3. OBSERVATION AND TARGET EXECUTION PLANNING AND PREPARATION**

Company team commanders will often find themselves as the observer (and executor) of battalion fires. Understanding the concept of echelonment of fires is critical for the indirect fire plan to be effectively synchronized with the maneuver plan. The purpose of echeloning fires is to maintain constant fires on an objective while using the optimum delivery system up to the point of its risk estimate distance (RED) in combat operations or minimum safe distance (MSD) in training. Echeloning fires provides protection for friendly forces as they move to and assault an objective, allowing them to get in close with minimal casualties. It prevents the enemy from observing and engaging the assault by forcing the enemy to take cover, allowing the friendly force to continue the advance unimpeded.

a. The concept behind echeloning fires is to begin attacking targets on or around the objective using the weapons system with the largest RED-combat (or MSD-training). As the maneuver unit closes the distance (i.e., crosses the RED line) enroute to the objective, the fires lift (or shift). This triggers the engagement of the targets by the delivery system with the next largest RED-combat (or MSD-training). The length of time to engage the targets is based on the rate of the friendly force's movement between the RED-combat (or MSD-training) trigger lines. The process continues until the system with the least RED-combat (or MSD-training) lifts and the maneuver unit is close enough to make its final assault and clear the objective.

b. The RED-combat (or MSD-training) takes into account the bursting radius of particular munitions and the characteristics of the delivery system and associates this combination with a percentage for the probability of incapacitation of soldiers at a given range. The RED-combat (or MSD-training) is defined as the minimum distance friendly troops can approach the effects of friendly fires without suffering appreciable casualties of 0.1% or higher probability of incapacitation.

#### **WARNING**

**Risk estimate distances are for combat use and do not represent the maximum fragmentation envelopes of the weapons listed. Risk estimate distances are not minimum safe distances for peacetime training use.**

c. The casualty criterion is the 5-minute assault criterion for a prone soldier in winter clothing and helmet. Physical incapacitation means that a soldier is physically unable to function in an assault within a 5-minute period after an attack. A probability of

incapacitation value of less than 0.1 percent can be interpreted as being less than or equal to one chance in one thousand (Table G-2).

System	Description	Risk Estimate Distances (Meters)					
		10% PI			0.1% PI		
		1/3 range	2/3 range	Max range	1/3 range	2/3 range	Max range
M224	60 mm mortar	60	65	65	100	150	175
M252	81 mm mortar	75	80	80	165	185	230
M120/121	120 mm mortar	100	100	100	150	300	400
M102/M119	105 mm howitzer	85	85	90	175	200	275
M109/M198	155 mm howitzer	100	100	125	200	280	450
	155 mm DPICM	150	180	200	280	300	475

**Table G-2. Risk estimate distances for mortars and cannon artillery.**

d. Using echelonment of fires within the specified RED-combat (or MSD-training) for a delivery system requires the unit to assume some risks. The maneuver commander determines by delivery system how close he will allow fires to fall in proximity to his forces. The maneuver commander makes the decision for this risk level, but he relies heavily on the FSO's expertise.

e. The following are the planning steps when echeloning fires (Figure G-1).

(1) **STEP 1.** The FSO must determine what FS assets (lethal and nonlethal) are available for the preparation. The FSO should consider the following:

- Does the NGF gun-target line support use of naval surface fire support (NSFS) in the preparation?
- Submit the preplanned CAS request within the correct ATO cycle.
- Identify and adjust for ammunition constraints and limitations (controlled supply rate may restrict or limit the use of certain types of ammunition).
- Dud rates and self-destruct times of improved conventional munitions. These types of munitions may be best suited to the flanks and beyond the objective and not on the objective.

(2) **STEP 2.** Verify risk estimate distances and commander's attack criteria. Risk estimate distance allows the commander to estimate the risk in terms of percent of friendly casualties that may result from the employment of lethal fires with close proximity of friendly forces. Risk estimate distances are based on the amount of risk the maneuver commander is willing to accept. The risk is usually expressed as the probability of incapacitation, which is the probability that a soldier will suffer an incapacitating injury.

(3) **STEP 3.** Plan targets on the objective, to the flanks of the objective, and beyond the objective. Timely and accurate intelligence is critical to this step. Weapons and ammunition should be matched to the appropriate target.

(4) **STEP 4.** Develop a communications plan to support the fires. The preparation may involve many FS assets over a considerable distance; reliable and redundant means of digital and voice communications are essential. Consider establishing both a ground and air retransmission capability.

(5) **STEP 5.** Determine the rate of movement of the force. This will vary depending on the type maneuver force and terrain; a fully mechanized force will travel much further and faster than a light infantry force. A combination of heavy and light forces will also be different. The S2's IPB should assist in determining a reasonable rate of movement. Caution is advised, as any movement rate determined can change. Close monitoring of subordinate units' movements is necessary and FSOs must develop a plan to alter the schedule of fires based on the movement rate.

(6) **STEP 6.** Develop the schedule of fires. Normally, fires begin before H-hour and may extend beyond it. Firing may start at a prescribed time or it may be held on call until needed. The preparation may be phased as follows:

- Phase 1 – Attack of FS means and observation capabilities, including FA HQ and CPs. Consider adding air defense targets in this phase as well.
- Phase 2 – Attack of main CPs, communications facilities, assembly areas, and reserves.
- Phase 3 – Attack of defensive areas in the forward positions and targets that pose an immediate threat to attacking units or forces.

The attacking force is most vulnerable to counter attack during reorganization. Include defensive fires in the plan to cover this phase.

(7) **STEP 7.** Brief the plan. The FSO should backbrief the commander and S3 prior to completing the scheduling worksheets. During the FS portion of the operations order brief, be thorough; it is critical that the subordinate commanders understand the preparation sequence and their responsibilities. A sketch may be.

(8) **STEP 8.** Complete the scheduling worksheets and ensure all elements receive a copy.

(9) **STEP 9.** Rehearse and refine the plan. The rehearsal should cover all EFSTs and not just the echelonment of fires.

1. Determine what assets, to include ammunition, are required and what assets are currently available or allocated.
2. Verify risk estimate distances and attack criteria with the commander.
3. Plan targets.
4. Develop a communications plan.
5. Determine what the rate of movement will be.
6. Develop the schedule of fires and decide how the preparation schedule will be initiated.
7. Brief the plan/confirm the method with the commander.
8. Complete the scheduling work sheets.
9. Rehearse and refine the plan.

**Figure G-1. Echeloning a preparation.**

#### **G-4. EXECUTION CONSIDERATIONS**

When the lead elements of the battalion task force approach the designated phase line enroute to the objective the FSO begins the preparation. Lead element observers and or company team FSOs track movement rates and confirm them for the battalion task force FSO. The battalion task force FSO may need to adjust the plan during execution based on unforeseen changes to anticipated movement rates. (Refer to Figure G-2, Figure G-3, and Figure G-4, page G-10.)

a. As the unit continues its movement toward the objective, the first delivery system engages its targets. It maintains fires on the targets until the unit crosses the next phase line that corresponds to the RED-combat (or MSD-training) of the weapon .

b. To maintain constant fires on the targets the unit must start the next asset before the previous asset lifts. This ensures no break in fires, enabling the friendly forces' approach to continue unimpeded. However, if the unit rate of march changes, the fire support system must remain flexible to the changes.

c. The FSO lifts and engages with each asset at the prescribed triggers, initiating the fires from the system with the largest RED to the smallest. Once the maneuver element reaches the final phase line to lift all fires on the objective, the FSO shifts to targets beyond the objective.

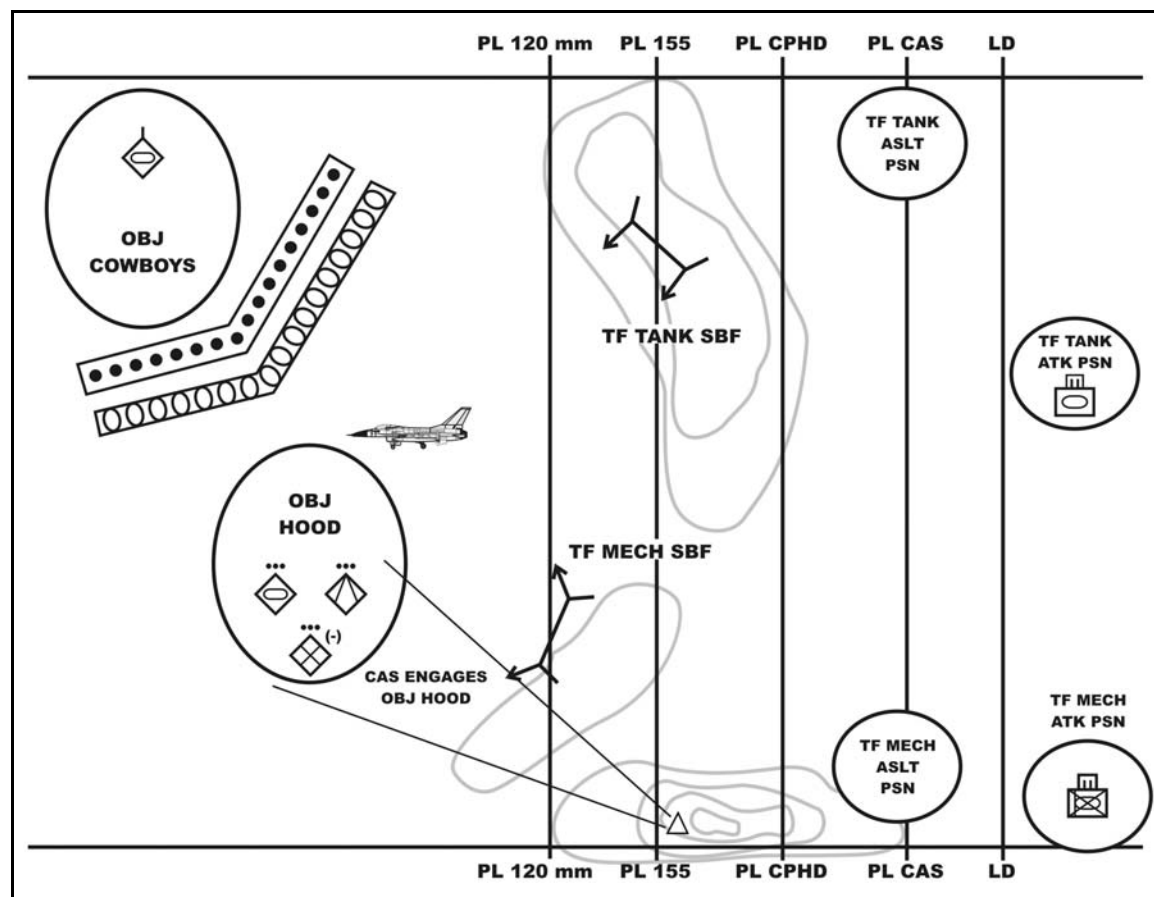


Figure G-2. Execution considerations – close air support.



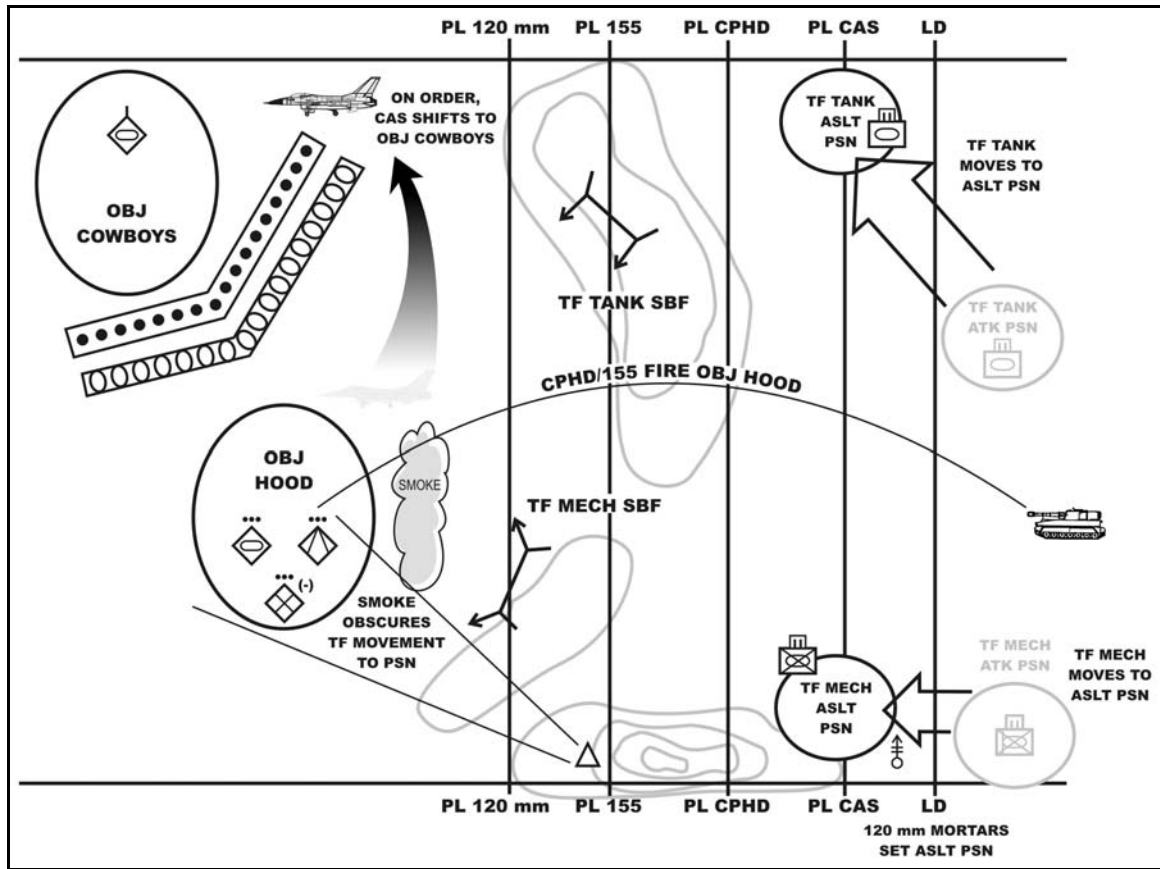


Figure G-3. Execution considerations – shaping fires.

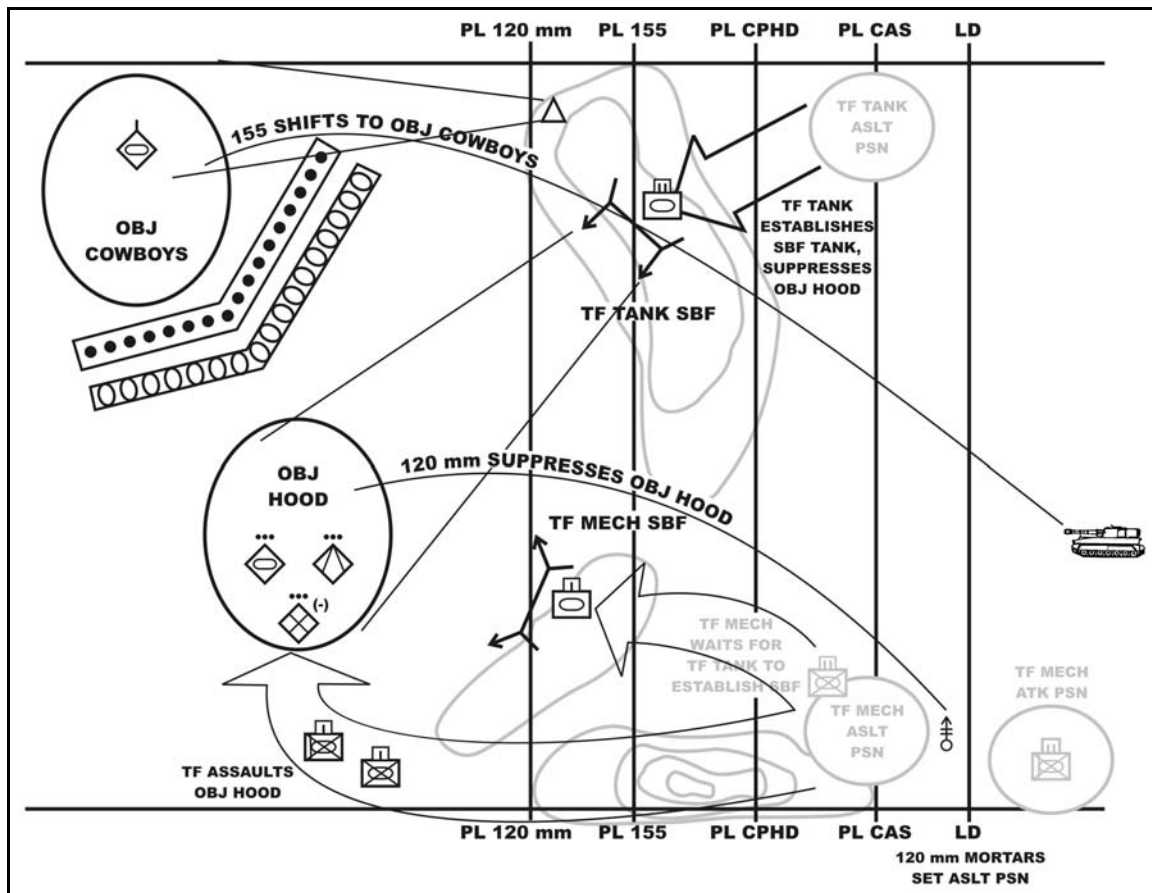


Figure G-4. Execution considerations – actions on objective.